

**TITLE OF THE INVENTION:**

Apparatus for recording global positioning system co-ordinates of components of a utility

5 **FIELD OF THE INVENTION**

The present invention relates to an apparatus for recording global positioning system co-ordinates of components of a utility

10 **BACKGROUND OF THE INVENTION**

A variety of sophisticated devices exist to assist in determining global positioning system (GPS) co-ordinates for an object. One of the current leaders in the industry is Trimble Navigation. Trimble Navigation sells their devices  
15 under such Trade Marks as: TERRASYNC, GISTSCE, ASSET SURVEYOR, and GPS PATHFINDER.

Co-ordinate data is collected in the field using the devices of Trimble Navigation. The co-ordinate data gathered  
20 in the field can subsequently be entered onto a map by the user.

**SUMMARY OF THE INVENTION**

What is required is an apparatus is simple to use and  
25 will permit more rapid recording of global positioning system co-ordinates of components of a utility.

According to the present invention there is provided an  
30 apparatus for recording global positioning system co-ordinates of components of a utility, which includes a portable controller having a memory and a global positioning system (GPS) co-ordinate device coupled to the controller. The GPS co-ordinate device dynamically provides GPS co-  
35 ordinates to the controller as positioning of the GPS co-ordinate device changes location. A display is associated with the controller. The display displays the GPS co-

ordinates of the GPS co-ordinate device on a scrolling grid of global positioning system co-ordinates. A utility identifier database is housed in the memory of the controller. The utility identifier database contains numerous symbols. Each symbol represents a particular component of a utility. An input device is coupled to the controller for selecting the symbol from the utility identifier database which identifies the component of the utility. The controller places the selected symbol on the scrolling grid of GPS co-ordinates and stores the symbol with GPS co-ordinates in memory for subsequent recall.

As will be hereinafter further described, when the apparatus described above is used, the information gathered in the field is automatically in usable form.

The resulting display can be made more user friendly by having the scrolling grid of GPS co-ordinates superimposed over a geographical map on which is displayed such things as road infrastructure.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

These and other features of the invention will become more apparent from the following description in which reference is made to the appended drawings, the drawings are for the purpose of illustration only and are not intended to in any way limit the scope of the invention to the particular embodiment or embodiments shown, wherein:

**FIGURE 1** is a perspective view of an apparatus constructed in accordance with the teachings of the invention.

**FIGURE 2** is a detailed front elevation view of the display on the apparatus illustrated in **FIGURE 1**, displaying a utility.

**FIGURE 3** is a detailed front elevation view of an

enhanced display for the apparatus illustrated in **FIGURE 1**, displaying a geographical map.

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#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT





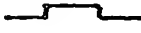



The preferred embodiment, an apparatus for recording global positioning system co-ordinates of components of a utility generally identified by reference numeral 10, will now be described with reference to **FIGURES 1** through 3.

##### Structure and Relationship of Parts:

Referring to **FIGURE 1**, apparatus 10 has a portable controller 12 having a memory. A global positioning system (GPS) co-ordinate device 24 is coupled to controller 12. As illustrated, GPS co-ordinate device 24 includes a ground rod 16 which is placed over a component of a utility to be identified. GPS co-ordinate device 24 dynamically provides GPS co-ordinates to controller 12, as positioning of GPS co-ordinate device 24 changes location. A display 20 is associated with controller 12. Display 20 displays the GPS co-ordinates of GPS co-ordinate device 24 on a scrolling grid 22 of global positioning system co-ordinates. A utility identifier database, generally indicated by reference numeral 18, is housed in the memory of controller 12. Utility identifier database contains numerous symbols, as will hereinafter further described and illustrated. Each symbol represents a particular component of a utility. Several input device 14 are coupled to the controller for selecting the symbol from utility identifier database 18 which identifies the component of the utility. Referring to **FIGURE 2**, controller 12 places the selected symbols 26 on scrolling grid 22 of GPS co-ordinates and stores the symbol with GPS co-ordinates in memory for subsequent recall.

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5      Table of Representative Utility Identifiers:

POWER POLE:	
FIRE HYDRANT:	
10 VALVE:	
WELD:	
15 RISER/ABOVE GROUND:	
PIPE:	
CORNER:	
20 CATHODE BED:	

Operation:

25      The use and operation of apparatus for mapping utilities  
 10 will now be described with reference to **FIGURES 1** and **2**.  
 Referring to **FIGURE 1**, ground rod 16 is placed over a  
 component of a utility. GPS co-ordinate device 24 provides  
 GPS co-ordinates to controller 12 for that particular  
 component. A symbol 26 is selected from utility identifier  
 30 database 18 using input device 14. Referring to **FIGURE 2**,  
 controller 12 places the selected symbol 26 on scrolling grid  
 22 of selected GPS co-ordinates displayed on display 20. As a  
 result, a user, by observing display 20, can accurately  
 ascertain not only the positioning of the utility but can  
 35 ascertain precisely the location of various components of the  
 utility such as fire hydrants, power poles, risers and the  
 like.

Variations:

Referring to **FIGURE 3**, display 20 can be made more  
5 user friendly by having scrolling grid 22 of GPS co-ordinates  
superimposed over a geographical map 28 on which is displayed  
such things as road infrastructure 30.

It will be appreciated that the co-ordinates  
10 provide an accurate indication as to latitude and longitude.  
When desired, the co-ordinates can also provide an indication  
of altitude or depth.

15 In this patent document, the word "comprising" is used  
in its non-limiting sense to mean that items following the  
word are included, but items not specifically mentioned are  
not excluded. A reference to an element by the indefinite  
article "a" does not exclude the possibility that more than  
20 one of the element is present, unless the context clearly  
requires that there be one and only one of the elements.

It will be apparent to one skilled in the art that  
modifications may be made to the illustrated embodiment  
25 without departing from the spirit and scope of the invention  
as hereinafter defined in the Claims.